

REMARKS

The last Office Action dated February 02, 2006 has been carefully considered. It is noted that Claims 2-8 were rejected under 35 U.S.C. &103(a) as being unpatentable over Maruyama (U.S. 6620764) in view of Wunderlich et al. (U.S. 5451932). Applicant respectfully seeks to traverse the rejection in that the Examiner has not established a prima facie case of obviousness with respect to claims 2-8.

The claimed invention is directed to a thermochromic display fixedly printed on the outside wall of a ceramic cup and claims features neither disclosed nor suggested by the references cited by the Examiner.

The applicant wishes to challenge any rejection of claims 2-8 based on the argument of obviousness related to Maruyama on the grounds that the applicant's invention was conceived of prior to the filing date of Maruyama. That being the case, any argument of obviousness based on Maruyama should be rejected out of hand, regardless of the content of the Maruyama patent. If the examiner needs further corroboration of the applicant's claim regarding his time of conception, such corroboration can be supplied.

Addressing Wunderlich et al., the applicant does not believe a prima facie case of obviousness has been established with respect to that patent. While the Wunderlich patent and the applicants invention both contain displays utilizing multiple thermochromic inks, there are significant differences between the two inventions which refute the argument that the applicant's invention is obvious in light of Wunderlich.

First, it should be noted that the applicant's invention relates to a thermochromic display applied to the surface of a coffee mug for the purpose of indicating the temperature of the contained liquid. Wunderlich, on the other hand, relates to electrical home appliances, namely washing machines and clothes dryers and the use of thermochromic ink to help indicate various states of the appliance such as the wash cycle being performed, fabric dampness etc. As the Wunderlich patent relates to a completely different field of invention (home electrical appliances) from the applicant's invention (coffee mugs requiring no power source) and as they incorporate thermochromic displays for different purposes, there is no compelling reason to conceive of the applicant's invention in light of Wunderlich, nor does the Wunderlich patent make any suggestion to do so.

It should also be pointed out the use of an electric heating apparatus to manipulate the temperature of the thermochromic display disclosed by Wunderlich is a significant and in

the applicant's opinion, non-trivial difference between the two inventions. In the Wunderlich patent, the ability to control the temperature of the thermochromic display essentially removes it from the category of temperature measuring devices and places it in the category of binary switches. In particular, the ability to quickly change the temperature of the thermochromic status indicators described by Wunderlich gives the thermochromic indicator described by Wunderlich, only two useful states – opaque or clear (corresponding to 'on' or 'off'). In the Wunderlich display, the intermediate state of partial opaqueness is passed through rapidly and is not utilized, whereas with regard to the applicant's invention, this intermediate state is exploited to provide information regarding the temperature of the coffee mug. In particular, the applicant has utilized hidden messages or images printed beneath the multiple thermochromic ink layers to help facilitate using the transitional temperature range of the thermochromic ink to provide useful information regarding temperature. The use of hidden messages is a feature not disclosed in the Wunderlich patent. As mentioned by the applicant in previous correspondences with the examiner, the use of hidden messages provides an aid to the user in helping to gauge where in the transitional temperature range the thermochromic ink lies. Such hidden messages provide the user with a more effective visual gauge than simply printing the thermochromic ink over a colored background, as is described by Wunderlich.

The applicant wishes to stress the point that any useful temperature indicator utilizing thermochromic ink needs to find a way to overcome one of the shortcomings of these materials – namely, that they have a fairly large transitional temperature range (approximately 5 degrees Celsius). As a result, any use of thermochromic ink as a temperature indicator needs a means of providing useful information to the user during the approximately 5 degrees during which they are neither completely opaque nor completely clear. Without such a means, one is left with a temperature indicator that can only indicate whether, for example, the temperature is below 40 degrees Celsius or is above 45 degrees Celsius. Such an indicator would be of limited value. The use of hidden messages, by providing a point of comparison to the eye, provides a means to allow one to discern temperature changes occurring within the transitional temperature range of the thermochromic ink. This problem is irrelevant to the application which the Wunderlich patent addresses. There is no need for the status display described by Wunderlich to provide information during the transition from opaque to clear and back again that the thermochromic inks employed in their status display make. There is no need, and none is provided. The Wunderlich display uses thermochromic ink to provide only two useful states – on and off (corresponding to clear and opaque). Their display does not use hidden messages or any other technique to try to convey more than two states per thermochromic ink because it is not necessary for their application. While such a display works fine for their application, it would be woefully inadequate where it to be placed on a mug and used as a temperature display. The use of a thermochromic ink simply printed over another color, without any message or image underneath would make it very difficult for it to be used as anything other than a crude binary temperature indicator.

It is therefore argued that the citing of Wunderlich and Maruyama to reject the applicant's invention due to obviousness is incorrect in consideration of the following:

Maruyama does not use multiple thermochromic ink segments, whereas the applicant's invention does.

The applicant conceived of his invention prior to the Maruyama filing date.

Regarding Wunderlich, the applicant's invention utilizes hidden messages in his display whereas Wunderlich does not.

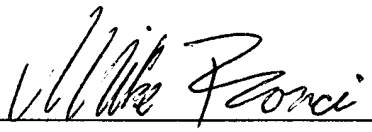
The Wunderlich patent incorporates an electric device to manipulate the thermal state of its thermochromic ink. The thermochromic display described by the applicant reacts passively to temperature changes occurring naturally during the normal use of the coffee mug, and involves no use of electricity.

Wunderlich describes a device whose purpose is to display status information for an electrical appliance, not to display temperature information to the consumer. As a result, of not being designed for the purpose of temperature display, the display described by Wunderlich would be unsuitable for such use (see above) and were it to be applied to a coffee mug, would be significantly deficient for that purpose.

Accordingly, as the Examiner has failed to meet the burden of establishing a prima facie case with the art cited, and such art is not sufficiently analogous to be cited in an obviousness rejection against the applicant, the rejection of Claims 2-8 should be considered improper. The Applicant hereby requests that the rejection be withdrawn and the application be allowed to pass to issue.

Should the Examiner consider it necessary or desirable to make any formal changes anywhere in the specification, claims and/or drawing, then it is respectfully asked that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance. Alternatively should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, she is invited to telephone the undersigned.

Respectfully submitted:

By:  on 3/30/06

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